WHAT IS CLAIMED IS:

1. A system for creating a virtual model, to be displayed on a computer driven display, of a physical structure comprising:

a baseboard;

at least one sensor providing sensor data;

at least one component capable of being sensed by the sensor, each component being mountable on the baseboard;

a computer interface for coupling the sensor to a computer, the computer determining the position and dimensions of each component mounted on the baseboard based on the sensor data, and the computer creating a virtual model to be displayed on a computer display of a structure representative of an arrangement of the components when mounted on the baseboard.

2. The system according to claim 1, wherein each component comprises a material capable of being sensed by the sensor when the component is mounted on the baseboard, and includes

an identification label capable of being sensed by the sensor;

wherein the sensor data comprises identification data sensed from the identification label and location and orientation data for each component sensed; and

wherein the sensor data is stored by one of the computer and the sensor.

3. The system according to claim 1, wherein each component is formed of a nonconductive material and further comprises at least one projecting electrical contact point formed of a conductive material; and

wherein the sensor comprises a circuit board providing an array of electrical contact holes at predetermined positions; and

wherein each of the projecting contact points of each of the components is receivable within each of the holes for making electrical contact with the circuit board.

4. The system according to claim 2, wherein one of the sensor and the computer store property data associated with the identification data for each component, and wherein the property data comprises data representative of the dimensions and shape of the component.

5. The system according to claim 2, wherein the identification label of each component comprises an electronic signature; and

the sensor is a circuit board capable of sensing the position of each mounted component and its electronic signature.

6. The system according to claim 2, wherein the identification label for each component comprises a magnetic signature; and

wherein the sensor comprises a magnetic sensing board capable of reading the position and magnetic signature of each mounted component.

7. The system according to claim 3, wherein the sensor is formed on the top surface of the baseboard, and wherein the circuit board is covered with a nonconductive covering having an array of holes placed at predetermined positions for exposing an array of electrical contact points on the circuit board.

8. The system according to claim 3, wherein the sensor is connected to a power source and accesses a voltmeter for testing for a positive voltage, an ammeter for determining current at contact points having a positive voltage, a switching network and a processor receiving data from the voltmeter and for controlling the voltmeter, ammeter and the switching network.

9. The system according to claim 3, wherein each component has two associated electrical contact points, and

wherein each electrical contact point of each component comprises a plurality of conductors wherein each of the conductors in one of the electrical contact points is in one to one paired correspondence with one conductor in the associated contact point;

wherein each electrical contact hole on the circuit board has a plurality of conductors; and

wherein electrical contact between a contact point of a mounted component and a contact hole of the circuit board comprises one to one electrical contact between the plurality of conductors in the contact point of the mounted component and the plurality of conductors in the contacted contact hole of the circuit board.

10. The system according to claim 8, wherein the sensor data comprises the location of contact points on the circuit board having electrical contact with associated contact points of mounted components and current values read by the ammeter for associated contact points.

11. The system according to claim 9, wherein the paired conductors in each component are independently electrically connected, each electrical connection comprising at least one resistor selected from a predetermined group of possible resistors; and

wherein an identification label of each component is comprised of the selected resistance.

12. The system according to claim 11, wherein each component comprises two electrical contacts, each electrical contact comprises three conductors, and each electrical connection between paired conductors comprises one resistor.

13. The system according to claim 12, wherein for each component, one of the electrical connections between the paired conductors comprises a diode; and

wherein an orientation of each component is determined by determining which of the associated contact points of the component had a zero current value for the conductor pair in electrical connection with the diode.

14. A component formed of a nonconductive material, for mounting on a baseboard comprising:

a pair of associated electrical contact points; each contact point having a plurality of conductors; each conductor independently connected in one to one correspondence to an associated conductor in the associated contact point with each connection including a resistor selected from a predetermined group of possible resistors; and

wherein an electronic signature for identifying the component is comprised of a combination of the resistors of the plurality of the connections of the associated conductors of the component.

15. The component of claim 14, wherein one of the connections further includes a diode.

16. A software application receiving sensor data for at least one component mounted on a baseboard, comprising computer program code;

wherein the sensor data comprises data representative of an identity, orientation and a location on the baseboard for each component mounted on the baseboard;

wherein the computer code processes the sensor data for determining the identity, position and orientation of each component mounted on the baseboard;

wherein the computer code accesses property data including data representative of the dimensions and shape of each component available for mounting, for determining the dimensions and shape of each component mounted on the baseboard in accordance with the identity of each component;

the computer code creating a virtual image representative of an arrangement of the components mounted on the baseboard based on the shape, dimensions, orientation and location of each component mounted on the baseboard.

17. The software application according to claim 16,

wherein the baseboard comprises a circuit board;

wherein the sensor data comprises data indicative of current values and associated resistance associated with each contact point of a grid of contact points on the circuit board;

wherein the identity is determined according to the resistance associated with each component mounted on the circuit board.

18. A sensor for sensing the identity, location and orientation of components mounted on a baseboard comprising;

a circuit board, mounted on the baseboard, having a grid of contact points, each contact point having a plurality of conductors;

wherein the sensor is connected to a power source and accesses a voltmeter, an ammeter and a switching network; and

wherein the sensor further accesses a processor for receiving data from the voltmeter and for controlling the voltmeter, ammeter and the switching network.

19. A method for creating a virtual model, to be displayed on a computer driven display, representative of at least one component mounted on a baseboard, wherein each component mounted on the baseboard makes electrical contact with an electrical circuit board formed on the baseboard and wherein the circuit board has an

array of contact points, each contact point having a predetermined location on the circuit board; comprising the steps of:

successively applying a high impedance voltage to each contact point for testing each contact point of the array of contact points, for determining the presence and location of a mounted component in electrical contact with the contact point being tested;

measuring the voltage for contact points on the circuit board within a predetermined radius of the contact point being tested;

determining that a component is in electrical contact with the test contact point and an associated contact point having a nonzero measured voltage, at the locations of the contact point being tested and the associated contact point, wherein the location of the contact point being tested and the associated contact point is location data for the component determined to be in electrical contact;

applying a low impedance voltage to the contact point being tested when determined to be in electrical contact with a mounted component;

sensing the current values for the contact point being tested and its associated contact point indicative of an identification of the component determined to be in contact with the contact point being tested and its associated contact point, wherein the identification of the component is identification data;

consulting a database of component identifications storing property data comprising dimension data for each component identification; and

creating a virtual model representative of an arrangement of the components when mounted on the baseboard according to a structure composed of each of the components based on the location data, identification data and property data for each component.

20. The method according to claim 19, wherein a level of components is mounted on a baseboard, and wherein a virtual image having successive levels is formed by the steps of:

creating a virtual model of a first level;

creating a physical structure for a second level;

creating a virtual model of the second level and integrating it into the virtual model of the first level.